DRAFT--
June 30, 2010

WTP POTENTIAL OPEN ISSUES TASK LIST
Research and Development
30-Jun-10
Original list prepared July 9, 2009

NOTES - The Project has just over $200M at risk for startup and operations
The following list of 2010 items has not been screened and is not prioritized.
Prime owner shown for task is estimate by WLT
Issues listed are intended to: 1- improve plant ops, 2- reduce S & C risk, 3- reduce dollars.
Issues that were again brought up but first identified in 2009 are shown bolded in the 2009 list below.

New Task Number	Original PETD Number	Title	Status as of June 30, 2010	Description	Comments	Suggested or Actual Prime Owner
The following tasks were identificd in the 2010 process review.						
2010 TECHNICAL ISSUES -						
1	N/A	Improved Efficiency HLP-22 PJM Array	On-hold?	Improve the efficiency of the HLP-22 PJM array thereby reducing Engr and fab costs while improving mixing robutstness. This would provide cost savings and risk reduction.	The design changes made to HLP-22 are inefficient and therefore require excess PJMs. A center array should be tested. This was suppose to be part of post M3 closure optimization.	Engr & Ops Process Tech (R&T)
2	N/A	Improved Efficiency UFP-1 PJM Array	On-hold?	Improve the efficiency of the UFP-1 PJM array thereby reducing Engr and fab costs while improving mixing robustness. This would provide cost savings and risk reduction.	The design changes made to UFP-1 are inefficient and therefore require excess PJMs. A center array should be tested. This was suppose to be part of post M3 closure optimization.	Engr & Ops Process Tech (R&T)
3	N/A	Non-Newtonian Mixing test	Being evaluated by the TSG	Demonstrate adequate mixing and bottom clearing with settling solids in a non-Newtonian slurry. Especially needed under	Special review team chaired by Dr. Wilmarth, SRNL, was brought in to evaluate this topic.	Engr/Process Ops Tech (R&T)

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4	N/A	PJV Capacity Evaluation	?	Evalauate the adequacy of the PJV system to handle PJM exhaust. Need review of the complete air system.	Does continous mixing mean continous or is air flow stopped at times to enable other tanks to mix. Is this part of M3 post closure	Engr
5	N/A	PJM air use strategy and operating plan review	?	Need to review the PJM air use plan to ensure all tanks are mixed adequately and consistently.	Have PJM operational restrictions been established due to limited air capacity?	Engr
6	N/A	Air System Review for Accumulator capacity	?	Are more accumulators needed in the air system? Can the air system provide what is needed with the many changes that have been made?	Should be part of the air system review.	Engr
8	N/A	Temp and Molarity Impacts on RF Resin	Data being analyzed	Analyze RF test data for temp/molarity impacts on RF life and capacity. Recent test data as part of M6 process limits indicates a reduced operating range at	Need to access for throughput and cost impact if resin life is reduced.	Ops Process Tech (R&T)
9	N/A	PT M6 Process Limits Evaluation	Scheduled to start in July	Conduct M6 Process Limits review for PT process. PT process limits assessment was not done pending resolution of the flowsheet	With leaching now targeted for UFP-2 and all the CNP/CXP changes, the process limits review must be done. Cooling may also be needed.	Ops Process Tech (R&T)
10	N/A	Heel Pump out Demo	Part of large scale demo?	Demonstrate performance of heel pumpout system. Do it now vs startup and reduce S/U time and risk. Include test of boroscope and camera.	How many tanks are impacted? What do in tanks which do not have it? Include as part of large scale demo.	Ops Process Tech (R&T)
11	N/A	Process Control and pipe hangers design review	Being worked?	Process Control and pipe hangers design review based on higher than 1.5 spg pumped out of tanks intially. Due to marginal mixing, the tanks will have a skewed concentration gradient with much heavier concentrations at the bottom of the	If spg limits are established as part of process control, impact on ops and thoughput must be accessed.	Engr
12	N/A	Sampling, Process limits and Systems Operating Review	?	A systems review is needed of the WTP process to examine for the practicality of operations with all the process requirements.	A step by step walk-through is needed to examine if the proper samples, lab time, instrumentation, etc enable the plant to be adequately	Ops
13	N/A	Process control and product quality review	?	Sampling and lab time could exceed allowable time. Can process be kept within limits with current controls?	Is more or alternate lab space and support needed?	Ops
14	N/A	PT samplers Demonstration.	Part of large scale demo?	Sampling streams with solids and settling solids is difficult especially with non homogeneously mixed vessels. Need to determine accuracy and bias of samplers with several feeds. Reduces startup risk.	Test (P9) of Vit system samplers resulted in several changes and that stream was homogeneous. The PT stream is not homogeneous. Demo in the large scale test.	Ops Process Tech (R&T)

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15	N/A	Rheology Control Demonstration	Part of large scale demo?	Define and demonstrate PT rheology control scheme to keep yield strength within limits especially if it needs to be controlled within specific limits to prevent settling. Need to account for dilutions,flushes, etc. Evaluate additives and margins.		Engr
16	N/A	Weight percent control Demonstration	?	How control weight percent?	Needed for several tanks	Engr
17	N/A	Product Quality in a Timebased Control System	Fall back if other control schemes are inadequate	Lack of adequate samples, inadequate level detection, and bubbler ops problems means a timebased system may be implemented.	The rheology of materials is time dependent. If uesd, how will this be factored into the control scheme for	
18	N/A	Pu Control Plan	?	While Pu with adsorbers may not be an issue, if the PuO2 crit limit of 200 grs/vessel is to be protected, will all incoming samples have to be analyzed for this? How?		
19	N/A	CNP Mass Balance Assessment	?	Review CNP mass balance. It appears that the the CNP evaporator will use more nitric than it recovers.		Engr/Ops
20	N/A	Nitric Acid addition in Caustic Tank Evaluation	?	Review the safety of adding nitric acid to to the caustic HLP27/28 tanks. An exothermic reaction will occur. Has the exothermic reaction been evaluated or will another nuetrallizing process step be added?	Has this been reviewed? Is cooling or other measures needed?	Engr
21	N/A	LAW HEPA LIFE Evaluaiton	?	With the scrubbers removed, the LAW HEPA life appears to be less than a month. Frequent maintenance and change out will reduce throughput.	What is projected HEPA life?	Ops
22	N/A	Large Particle Dispostion	?	Define how large particles will be dispositioned in every tank. Will particles be ignored, pumped out, assumed not to come, etc?? Define the plan.		Engr/Ops Tech (R&T)
23	N/A	Contract, R&T Plan, and Addendums Scrub	Will start in July	Review, list, and provide dispostion of each issue listed R&T have been dispostioned.	This will need to be done as part of an MSA for the ORR.	Ops Process Tech (R&T)
24	N/A	Melter Gas Addition Evaluation	?	Evaluate materials of melter riser material due to addition of Argon gas (causes reducing environment). Argon gas has been added to help prevent foaming in the riser and improve pour control but this creates a reducing environment which can negatively effect platinum. Platinum is only	Use another gas?	Engr

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New Task Number	Original PETD Number	Title	Status as of June 30, 2010	Description	Comments	Suggested or Actual Prime Owner
25	N/A	System descriptions Upgrades	?	With the many changes to the flowsheet (UFP-2 leaching, CNP/CXP, temp changes, etc), the system descriptions need a thorough review. Need to ensure that Ops Tech (Ops Tech (Ops Tech (R&T))) process knowledge and recs are included.	A PIER in 2009 required R&T to review process description sections. This has not been done to any great extent. Process descriptions not only capture knowledge but also provide input for operating procedures.	Ops Process Tech (R&T)
26	N/A	Review all materials of construction especially in pumps and control valves. Rubber used in many places.	?	The transfer pump to HLP-27/28 has rubber casing liner which will not be suitable in a rad environment. Need to check all similar and associated equipment.	Rubber does not hold up in rad environment.	Engr
27	N/A	CXP 4 tank system control demonstration	?	Need confirmation of control scheme to ensure no precipitation or throughput restraints exist. Mitigates startup risk and	Test in PEP?	Engr/Ops Tech (R&T)
28	N/A	Inline or at-line process control evaluation	?	Added sampling and process knowledge requirments have grown as the process has been worked on. Inline or atline sample analysis and controls can reduce lab work and improve controls.	This could greatly aid operations, throughput, and quality.	
29	N/A	Interface and WAC sample Analysis Requirements	Active	Need to ensure all needs are met. Need to evaluation RDQO, ICD-19, M-1, M3, prequal, etc to ensure appropriate samples taken and analysis done.	Need WRPS involvement	Ops
30	N/A	LAW canister decon demo.	Been discussed before. Final decision not made.	Identified as an issue in the TMP/TRA.	How representative is the data to actual conditions?	Ops
31	N/A	LAW lid attachment.	Been discussed before. Final decision not made.	Change design to welded LAW lids so that contamination potential is reduced. Replace push in lids with welded lids. Why take a chance with contamination? Identified as an issue in the TMP/TRA.	Data indicated that one in five cansisters had leaking head issues. This will impact throughput.	Engr
32	N/A	Expanded Waste Characterization	On-hold pending RDQO and non-Reg DQO	Improve waste characterization data on particle size, solubilities, settling velocities, etc. This will greatly aid plant operations	Include data needs in sample analysis planning (RDQO, ICD, crit samples)	Ops Tech (R&T)
33	N/A	Filter Cleaning with Oxalic Acid.	?	Define filter cleaning steps and how oxalic acid will be used. Nitric acid in PEP was not very effective in PEP. Oxalic acid was. Need to ensure this is added to the plant process and properly reviewed.	Oxalic works best on iron. If oxalic acid was needed in PEP why does the plant not have it permanetly installed?	Engr/Ops

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34	N/A	Caustic Use Optimization	?	Review and optimize caustic useage inlight of lower leaching temp. Part of contract stretch incentive fees.	Lower temps will impact boehmite leaching. Why add caustic for it? Need to work on plans for stretch	Ops Tech (Ops Tech (Ops Tech (Ops Tech (R&T))))
35	N/A	Recycled Permanganate Evaluation	?	Review impact of recycled MnO4 on process rheology and precipitation. Recycled NaMnO4 could cause precipitation due to being a	Will peroxide be added to nuetralize the permanganate? If so, how much? Should Cr be underleached?	Ops Tech (Ops Tech (Ops Tech (R&T)))
36	N/A	Waste Loading Improvements	DOE had program in 2009. Need update and definition of our role.	Part of contract tech incentives. Improve LAW and HLW waste loading with respect to Cr, waste, and crystal formation (liquidus temp). Will improve throughput.	Part of stretch challenges. ORP has waste loading programs underway?	Ops Tech (Ops Tech (R&T))
37	N/A	Technicium Effluent Evaluation	Been discussed but no action outlined.	Evaluate Tc limits, recycle, and disposition as it appears that Tc exceeds ETF limits. Tc removal was eliminated from the flowsheet due to the assumption that the Tc would go into glass. This has been shown to be an inaccurate assumption. Needs	Expand ETF, reintstiute Tc removal?	
38	N/A	Filter Fouling	?	Develop procedures to prevent biological induced fouling and corrosion of the filters. This was a problem in PEP.	Needed for both startup and layup	Ops Process Tech (R&T)
39	N/A	Filter startup and cleaning procedure.	?	The PEP startup demonstrated what will happen with resiudal materials in the system. Guarding against this and outlining clearning procedures are needed. Also need to consider having no filters inplace during parts of startup and commissioning.	See PEP experience	Ops
40	N/A	Effect of Air Temps on PJMs	?	Evaluate thermo heating and cooling within PJMs and the effect on buildups and structural integrity. Internal air temps will vary greatly due to compression and expansion. This could impact deposition as	Need an evaluation	Engr
41	N/A	Startup and Commission Simulant Program	To start in July	Defining requirements, developing the simulants, vendor tests, vendor quals, transportation and disposition all need to be defined. Also how to minimize amount and synergy with other testing needs definition.	This is a complicated program that needs much planning. Could involve one or multiple simulants.	Ops Process Tech (R&T)
42	N/A	Suction/dilution test demo	Part of large scale demo?	Dilution in sucdtion lines is a common practice, however, controlling rheology and process sampling requirments are special	Reduces startup test time and risk.	Engr & Ops Process Tech (R&T)

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43	N/A	Particle Size Reduction	Nothing planned at this time?	Provide particle size reduction into WTP to provide for more robust plant	Can be done by mechanical means ahead of HLP-22 or by using HLP-22 as a separations tank. West Valley did it and SRS is planniyg to do it.	Engr & Ops Process Tech (R&T)
44	N/A	Particle Size Definition	?	Clearly define what is the basis of the particle sizing used in all phases of design so that it can clearly be evaluated should future work change the particle size.		Engr
45	N/A	Large Scale Demo	Part of M3 Closure follow tasks	Conduct large (full) scale vessel test to confirm scaling, sampling, and PJM controls	Need to demonstrate process control, sampling, and scale up mixing adequacy.	Engr & Ops Process Tech (R&T)
46	N/A	Pu and Am Dissolution	?	Based on the decisions for CXP solids resolution, it may be necessary to do additional studies/testing of oxidative leaching for prevention of dissolution of Pu and Am. The solution to prevent solids precipitation includes performing filtration, washing, etc at elevated temperatures of about 45 deg. C. Most testing of oxidative leach has been done at 25 C. However there are tests done at higher temperatures up to 80 degrees C. These test has shown that chromium, Pu and Am increase in dissolution at the higher temperatures. We made need additional studies for oxidative leaching at 45 degrees to show that we don't dissolve Pu and Am to such an extent that we now have a problem in CXP, CNP	Suggested by E. Lee. Needs to be examined in the Haz Ops review.	
The following issues were identified in 2009 as needing attention.The bolded issues were again identified in the 2010 review.They are separated into 3 groups						
				2009 Technical Issues - Engineering		
1	5	Provide capability to change out the Demister Pad in the blackcell (gray cell)		Could have major impact on design. Need to meet with AREVA.	Part M6-CNP Program.	E
2	6	**Evaporator Nozzle life extension**		Nozzles need 40 year life or backup plan (spare inplace nozzles?)	Relates to the demister pad changeout issue	E

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The follow						
1			CS	N	X	Major item if it needs to be done before plant is operated.
2			CS	N	X	Relates to pad change out. Address before startup

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3	7	**Improved IX column design so that air is not trapped below the bottom screen.**	WTP engr disagrees with Guz Benz on the need for the change.	resin cap, screen angle to prevent bubble entrapment	Impacts vendor design. Need to resolve potential for trapped air with Gus Benz.	E
4	42	**Validate IX H2 Venting System and verfiy no impacts on IX operations**		Might work but will disrupt the IX column. Part of CNP/CXP program.	Need to confirm system integration	E
5	8	Post Filter/Pre IX Precipitation Resolution	Design action being taken with CNP/CXP changes.	Could have major impact on design	Part of M6 CXP. Design changes most likely needed.	E
6	15	**Prevention of Suction Line Air Entrainment especially the UFP line**	Much more important now that flowsheet has been changed to UFP-2 leaching.	PEP operation highlighted the concern of air entrapment affecting the NPSH of the UFP suction line. This issue is not limited to just this line.	Need to reevaluate NPSH on critical lines.	E
7	16	Prevention of Air Entrainment in filter loop connectors.		The potential to suck air in through PUREX type connectors as well as HPAV vents should be evaluated.	Would lead to pumping issues	E
8	20	**Define Filter Tube Manufacturing process and vendors.**		Filter flush program found cracked tubes as a result of manufacturing. Need to assign a tech lead to ensure filters are made crack-free.	Cannot put the ball solely in the vendor's court due to impact on us.	E
9	21	**NH4NO3 Stack Emissions Ports evaluation: do enough exist?**		Review if stacks have ample sampling points to detect formation	Need for qualification	E

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3			CS	Y	X	Need to ensure robust design - col change out is difficult. May be done. Items include potential to trap air, riser location and design, and distributor nozzle design.
4			CS	Y	X	H2 system could have impacts on IX.
5			CS	Y	X	M-12 Lessons Learned
6			CS	Y	X	M-12 Lessons Learned
7			CS	Y	X	M-12 Lessons Learned. Purex connectors typically leak and therefore will leak air.
8			CS	Y	X	Need to clearly work with vendor on manufacturing process.
9			CS	Y		

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10	24	Film Cooler Design Validation		New design has not been tested. Design was changed after half scale testing was complete.	Need to review new design and decide on testing.	E
11	30	**HLP-22 Mixing changes**	Closed as part of M3.	Need to define mixing needs. Current design can be significantly improved.	M3	E
12	32	**Improved level control especially at low Tank Levels**		PJM operation and return flows disturb bubble tube ops	Level control is key operating parameter	E
13	43	Define UFP Steam Ring Injector Design		How prevent erosion and plugging?	40 year life needed	E
14	47	**Review Criticality Control Measures**		Pu will precipitate during Nitric acid concentration. Review criticality scenarios and mitigation.	Does Cr leaching impact Pu and can NaOH be kept at <.25M. This issue may be closed.	E
15	49	Define Fate of Second Phase Organics		Define where second phase goes, ex, antifoam in blend vessel	Are decomposition products soluble? Blend and lag vessels may have 6 month holdup. May be non-issue but where closed?	E
16	50	**Evaluate potential for Cracking induced by Hg**		Hg can induce meterials cracking in offgas piping	Has this been looked at?	E
17	52	Improve UFP-2 Temperature control and Response Time		UFP2 response times in PEP were too slow	Need to move thermocouples? Different thermocouples?	E

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10			R	Y		Both WV and SRS had problems. WTP tested at half scale and then made design changes.
11			CS	Y	X	The M3 program
12			CS	Y	X	M-12 Lessons Learned. Level control at low levels in PEP was a problem.
13			CS	Y	X	M-12 lessons learned. Plugging and erosion a problem.
14			CS	Y	x	Relates to Myler memo. Testing with real wastes may be needed.
15			WL	N		Are all decomposition products soluble?
16			R	N		Did material specs take cracking into account or only corrosion? Review design. CS if not addressed.
17			CS	Y	X	M-12 Lessons Learned.

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18	53	Improve Permeate flow measurement		As demo'd in PEP, improved meters needed	What meter is used? May be none issue.	E
19	56	Rad contamination of the steam system via a leak.		Captured here for completeness	Being reviewed	E
20	57	Rad contamination of the chilled water system		Similar to the steam sys issue (#56) but lower chance	Should be reviewed	E
21	59	TLP Evap to LAW line pluggage		Is line pluggage a possibility? Mitigation measures?	Does M1 address or is this a separate issue?	E
22	69	Demonstration of Melter Power supply system		Alternate wave form to be supplied	is control demo needed? Refers to power wave form to melter.	E
23	70	**Vessel ventilation system balance and impact on operations**		the limited buidling ventilation prevented some vessel mixing changes due to limited capability	Has the system been reviewed now that several years have passed and many changes made?	E
24	73	Melter feed Radar Level improvement		Radar level monitoring was greatly impacted by foam.	Is a backup to bubblers needed?	E
25	76	Recovery of IX distributor nozzles.		If IX feed distributors plug, how will they be recovered?	Removing the whole column for just this is a major time consumer but this is a high prob point of pluggage.	E
26	78	**Post filter precipitation detection**	Part of CNP/CXP changes??	Maybe needed despite mitigation approaches	Plugging the IX column is a bad day	E
27	79	**Precipitation detection in the CNP system**	Part of CNP/CXP changes??	Maybe needed despite mitigation approaches	solids are an issue	E

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18			R	Y		M-12 lessons learned. Does meter read in units that Ops will use?
19			CS	Y	X	Active item.
20			R	Y		Sister item to previous item. Maybe a ghost but ought to be looked at.
21			R	Y		
22			R	Y		Is demonstration of power wave needed?
23			R	Y		System needs a review of sizing and capability
24			R	Y		Single Bubbler to be used in addition to radar.
25			CS	Y	X	Relates to fines and precipiate. How keep clean or clean if plugged?
26			CS	Y	x	M-12 Lessons Learned. Don't need if actions taken to address solids.
27			CS	Y	x	

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28	93	**Evaluate possibility for Sodium aluminate silicate formation due to glass formers in recycle.**		SRS plugged an evaporator with NaAlSi and entrapped 3 critical masses of U when a aluminum rich stream was mixed with a silica rich stream. Relates to task 82.	Need to closely examine all recycles especially those involving glass formers.	E
29	82	Cs Entrapment in Sodium Alumino silicates		Could form after the fitler	Impact LAW?	E
30	83	RFD pump demo to show M1 performance		Will an RFD meet the line flow requirements?	M1 looked at continuous flow. RFDs are pulse flow. Risk mitigator.	E
31	98	**M-1 Closure. The Project has never accepted reports #175 and #189.**		In many cases the pipeline design has no margin due to incorrect assumptions and underprediction by the design guide. A fixed Reynolds # cannot be used. The 30% referred is base design,not an optional	PNNL-WTP debate on basis for line design	E
32	19	**Establish Leaching temperature and Margin for Control**	Testing underway. Test matrix may make temp differenentiation difficult.	Safety and basis for 90C max leaching needs to be verified	Current max is 90C. Lower temp could lead to TP impacts and increased HLW canister count	E
		TECHNICAL ISSUES - ENGINEERING/OPERATIONS -				
1	1	**Define control of LAW Melter Feed Rhelogy**		Feed can exceed Pascal limits for mixing and pumping	Was recommended for M6 but not approved. Could dilute feed	Ops

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28			CS	Y	x	Initial modeling results show the formation of aluminosilicates
29			CS	Y	x	
30			R	X		M1 did not investigate line plugging & deposition with pulse flows.
31			CS	Y	X	
32			CS	Y	X	Could impact Al dissolution if temp has to be lowered. Also need to set control point.
1			R	Y		Dilute feed; use prequal test to identify. Could affect throughput

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2	2	**Define Control of HLW Melter Feed Rhelogy**		Feed can exceed Pascal limits for mixing and pumping	Was recommended for M6 but not approved. Could dilute feed	Ops
3	3	**Review route and disposition of IX Resin Fines**				Ops
4	4	**Impact of GFC in Recycles - effect rheology and precipitation?**		GFC can recycle back to PT via recycles	Impact on filter	Ops
5	9	**Define UFP Process Limits Eval (part of EFRT M6)**		Need to do after flowsheet is finalized.	M6 Phase II	Ops
6	11	Oxalate Recycle Buildup Impacts on Throughput	Addressed in CNP/CXP changes	Oxalate will enter our plant saturated and with solids. The solids will build up in the recycle and reduce throughput	Oxalate and other sodium salts will reprecip in the evaporator and be fed back to the front end of PT. They will build up and reduce throughput.	Ops
7	12	Phosphate Handling	Addressed in CNP/CXP changes	Phosphates will gel which could cause pluggage problems in many areas	Operating plans to handle Phosphate feeds need to be developed. Possibly additional cleanout ports could be needed	Ops
8	14	**Clean Out Port Review**	Part of M3 closure. Which tanks will have it? Is is practical? What will it really be used for?	Settling solids, phosphates, and process upsets could cause line plugging. Need to review system design to ensure ample cleanout and flushing ports.	Without these, opeations could be severly hampered.	Ops
9	31	**Line Plugging Recovery Planning**		Need to resolve potential for line plugging and identify if sufficient cleanout ports exist	Related to M1resolution	Ops
10	17	**Expanded Glass Compositions- Waste loading during commissioning**		Need to define glass compositions for feeds between current min glass loading and max Al	End points are known but not intermediate formulations	Ops

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2			R	Y		Dilute feed; use prequal test to identify. Could affect throughput
3			R	Y		reduces filter life
4			R	Y		reduces filter life
5			CS	Y	X	
6			CS	Y	X	Could have major TP impact
7			CS	Y	X	Could have major TP impact IF plugging occurs. Dilute feeds?
8			CS	Y	X	M-12 Lessons Learned
9			CS	Y	X	Relates to cleanout ports -- Issue #14.
10			WL	N		Part of Na Reduction program.

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11	23	**Waste Qual - Plant Ops Needs Integration to ensure scope is incorporated**		Identify what testing must be done to validate and verify Waste qual approach	Need to include in test program	Ops
12	27	GFC Supply Confirmation		Need to confirm availability of all GFCs to meet our criteria	Some may not available	Ops
13	65	**Define how operator knows concentration point has been reached**		Needed for operations	relates to sample and control issue	Ops
14	66	**Define how operator knows when water goes forward or backwards, ie, when at the 3.5M point?**		Needed for operations	relates to sample and control issue	Ops
15	95	Melter Operation Demonstration		Demonstrate operation without looking into it and standing next to it.	Relates to plant controls	Ops
16	80	**How determine eluate and acid purity?**		Needed to ensure no Cs in acid or contamination.	Does current sampling plan address this?	Ops
17	64	Cr Mass Balance		Are impacts of NaOH, acid, MnO4 etc evaluated for Cr.	May be closed issue	Ops
18	51	**Define Cr Leaching Sample plan**		More samples may be needed than planned	Goes with sampling question. Can Ops really operate the plant	Ops
19	28	**WTP Sampling Plan Definition**		Samples needed for operation and diagnostics need to be reviewed.	Do enough exist to operate and trouble shoot hot ops?	Ops

New Task Number	Where is it Listed and/or Tracked?	If Dispostioned and Closed, Where is it Documented?	Status CS/R/WL	Commissioning Impact Y/N	High Priority "X"	Comments
11			R	Y		
12			R	Y	X	Need to iniitiate supply line confirmation
13			R	Y	X	Relates to task 40 - how will ops control the plant? Is operating by a calc good enough?
14			R	Y	X	Relates to task 40 - how will ops control the plant?
15			R	Y		How well can operators operate the melters remotely?
16			R	Y	x	Another control question
17			R	N		M-12 Lessons learned
18			R	Y	x	M-12 Lessons learned
19			R	Y	X	M-12 Lessons Learned.

New Task Number	Original PETD Number	Title	Status as of June 30, 2010	Description	Comments	Suggested or Actual Prime Owner
20	40	**Evaluate and Define Instrumentation and Control Measures for Operators**		Does enough exist to run the plant based on what we saw in PEP? Can't put your ear next to the tanks to tune the PJMs.	Goes with sampling question	Ops
21	77	**Reevaluate laboratory capacity if added samples or faster turnaround times are needed**		Lab could be plant holdup	ID other lab sources and how to use them to support routine plant ops.	Ops
22	29	**Initiation of RF Resin and seed Procurements**	Underway??	We only own tech for seed to bead manufacture, not seed manu. Microbeads at risk of going out of business	Need to buy seeds and beads now to mitigate risk of vendor shutdown. This is a high priority	Ops
23	33	**Define Prequal testing**	"Prequal tests" are being used as capture point for everything.	EFRT Issue M5 defined the need for Prequal feed testing. Need to spec out complete plan. Needs and scope could be bigger than expected.	What will be done, how much feed is needed, where to test, when it is needed, and what to test for has not been defined.	Ops
24	67	Where do Prequal testing prior to plant turnover		Plan was to use 222 Lab but recent BNI decision indicated COI	Can PNNL support? Cost?	Ops
25	34	**Improved Filter Cleaning and Microbe control**		Need to define cleaning and layup procedures. Need to test with different feeds and sequences	M-12 Phase II	Ops
26	36	**Review and confirm LAW Canister Sealing Method**		Press, Weld or Glue? Was defined as < TRL 6. Per DOE data indicate that 20% of canisters will require rework	Need to finalize. .	Ops

New Task Number	Where is it Listed and/or Tracked?	If Dispostioned and Closed, Where is it Documented?	Status CS/R/WL	Commissioning Impact Y/N	High Priority "X"	Comments
20			R	Y	X	M-12 Lessons learned. Operators cannot go into the plant the way we did with PEP. Relates to #28 and #40.
21			R	Y	X	Need to evaluate in light of samples needed, prequal, etc.
22			CS	Y	X	Definite high priority. Microbeads survival endangered. We do not own seed technology.
23			CS	Y		Comprehensive testing needed with early batches.
24			WL	N		Will current COI prevent use of the 222 Lab?
25			CS	Y		M-12 Lessons Learned. Especially important as filters are turned over to Ops from construction.
26			WL	Y		Closed issue??? Need to confirm.

New Task Number	Original PETD Number	Title	Status as of June 30, 2010	Description	Comments	Suggested or Actual Prime Owner
27	39	Evaluate water flush frequency in OR model (include HPAV deadleg flushing)		Need to define how water additions, dilutions, and flushes effect throughput	Need final numbers and assumptions to model. Comment of dilute it, flush it, purge it, etc with water are made with little consideration for TP impact.	Ops
28	41	**Commissioning Feed Development**		Need to define how many feeds are needed and to accomplish what	Can they be reused or recycled?	Ops
29	44	**Confirm Commissioning Simulant Supply Plan**		How obtain amount, store, remix, etc	Relates to development issue	Ops
30	45	**Outline Commissioning Sim Disposal Plan**		Make into glass?	other?	Ops
31	48	Verify Carbon Bed Performance		Verify performance of carbon by new vendor	Vendor switched after spec'd	Ops
32	54	Backpulse system optimization		Need to define.	M-12 Phase II	Ops
33	55	**Need systems engineering review of systems to ensure integrated performance**		Systems have largely been looked at as stovepipes or individual systems. H2 removal system perf on IX is good example.	Was part of M6 Phase II but got dropped out. Most plant problems are at the interfaces, not within the parts.	Ops
34	58	PWD tank capacity review		Are tank volumes large enough with all the planned water additions?	Throughput impact	Ops
35	61	**RF radiation durability**		Determines life	To be done at Oak Ridge in M6 Phase II	Ops

New Task Number	Where is it Listed and/or Tracked?	If Dispostioned and Closed, Where is it Documented?	Status CS/R/WL	Commissioning Impact Y/N	High Priority "X"	Comments
27			WL	Y	X	Water and oxalate could have big TP impact.
28			CS	Y		
29			R	Y		Need to address shipping, aging, etc.
30			R	N		
31			R	N		Need to consider to ensure MAC limits met.
32			R	Y		M-12 Lessons learned. M-12 Phase II rec.
33			CS	Y	X	To date, equipment has been looked at as a stove pipe. Need to do systems interaction review. This is more than process limits. Was dropped out of M-6. Needs to be done
34			WL	N		
35			CS	N		Part of M6 CNP/CXP program. Being done at Oak Ridge

New Task Number	Original PETD Number	Title	Status as of June 30, 2010	Description	Comments	Suggested or Actual Prime Owner
36	62	**RF durability in higher caustic**		NaOH operating range exceeds testing validation range for RF. Hydroxide degrades the resin.	Tested up to 2M OH. Plant will run at 5M free OH.	Ops
37	62A	**RF resin kinetics affected by viscosity (Na)**		Testing done 4-6M Na. Need to test wider range (3-7M Na).		Ops
38	63	**RF durability at high temps**		Resin tested at 25C. Need testing at higher temps (45C). Will test at up to 70-80C.	Especially needed if heating chosen to address post filter precipitation.	Ops
39	81	Test for the impact of Organics and their decomp products on RF resin life and adsorption		Has previously been suggested.	Goes with rad and temp testing	Ops
40	81A	RF line pressure if acid form exposed to NaOH		A resin plug could develop very high wall pressures if it swells.	Review potential.	Ops
41	68	Potential for GFC supply line pluggage		Was this fully mitigated in earlier testing? What do if plugs occur?	Closed?	Ops
42	72	Compile Lessons Learned from the 242A Evap startup		The TF had much difficulties starting up this evaporator which is the "same' as ours.	What were the problems?	Ops
43	74	Key Rad Equipment Removal demo's		Should removal of key systems such as IX and filtration be demonstrated via remote ops during cold commissioning? EFRT also questioned this.	Maybe in the plan?	Ops

New Task Number	Where is it Listed and/or Tracked?	If Dispostioned and Closed, Where is it Documented?	Status CS/R/WL	Commissioning Impact Y/N	High Priority "X"	Comments
36			CS	N		Part of M6 CNP/CXP program IF we can modify contract via ORP.
37			R	N		Part of M6 CNP/CXP program IF we can modify contract via ORP.
38			CS	N		Part of M6 CNP/CXP program IF we can modify contract via ORP.
39			CS	N		Funding exists in planning packages. Was delayed due to uncertainity with antifoam selection.
40			WL	Y		Need to evaluate.
41			WL	Y		Does prior testing put this to rest?
42			CS	Y		TF had issues starting up the evap again. Let's learn from them.
43			R	Y		Need to do for critical equipment. Maybe part of startup plan.

New Task Number	Original PETD Number	Title	Status as of June 30, 2010	Description	Comments	Suggested or Actual Prime Owner
44	75	Full Scale IX Demo needed		After all the discussion and debate on the IX column, should ops be demonstrated with a phosphate feed or other and include all operating steps?	Would be great risk mitigator. Was suggested years ago.	Ops
45	84	Nitric acid vs NaOH addition protection.		Adding the wrong chemical can have grave results	How is this controlled to prevent it?	Ops
46	85	**Develop Simulant of first Hot feed and test it.**		Risk Mitigator similar to cold simulant test	Needed especially if hot feed very different from cold simulant	Ops
47	86	**Characterize waste (esp. Gibbsite, boehmite) kinetics, solubilities,and other parameters**		Improves models	aids planning. Included as M-12 Phase II rec.	Ops
48	88	Improve sulfur leach factors		removing sulfer helps melters	Sulfate removal was once part of the process. Part of M-12 Phase II.	Ops
49	89	Test Aluminum solubility enhancers		aid Al removal	addresses post filter precip and other issues. Could reduce Na. Part of M-12 Phase II.	Ops
50	90	Test impact of Noble metals on leaching processes		Could impact	Closed? Part of M-12 Phase II	Ops
51	94	Confirm first hot feed tank and glass composition		Relates to tasks 1,2, 18, 19, and 38	First tank will most likely change from current plan	Ops
52	96	Demo hot repeditive tasks to ensure ALARA is maximized.		Need rad test demo facilities		Ops
53	37	**Canister Decon Validation**		Was defined as < TRL 6	Need to demo to mitigate risk?	Ops

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44			WL	Y		Prior agreements were made that the column would be tested full size. Is that still needed?
45			R	Y	x	Safety and ops issue. Must be part of ops trainng program.
46			WL	Y		Is a simulant test of the first hot feed needed? M-12 phase II rec.
47			R	Y		M-12 Phase II rec
48			R	Y		Are the factors correct?
49			WL	N		Could be part of Na reduction program.
50			WL	N		Complete? No effects seen in lab tests.
51			WL	Y		Goes with Systems 4A plan involvement below.
52			R	Y		
53			CS	Y		

New Task Number	Original PETD Number	Title	Status as of June 30, 2010	Description	Comments	Suggested or Actual Prime Owner
54	22	**Tc Effluent and Reduction**		Tc from WTP will exceed ETF capability requiring expanded capability	Identify what can be done with Tc in the WTP process. Consider reinstalling the Tc column.	Ops
TECHNICAL ISSUES - OPERATIONS - OTHER						
1	97	Sulfate removal to LAW		Sulfate has inverse solubility. Do kinetics support removal when washing?	Scoping tests indicate that this is not an issue	Ops
2	35	Define Evap Capacity		Water addition, caustic changtes,solids, all impadct evap performance	Need to define capacity	Ops
3	13	G2 Model Resolution		***N/A for this listing.*** OngoingNeed to upgrade to include latest Glass composition, UFP opertation, and	Will identify pinch points and TP restraints	Ops
TECHNICAL ISSUES OTHER -- TANK FARM AND TPRA						
1	18	Expanded Glass Compositions - Mission		Broader formulations are needed to ensure feeds can be handled as the Tankfarm revises the waste delivery plan.	Tank order and sequence are likely to change thereby impacting operation is year after SU	TPRA

New Task Number	Where is it Listed and/or Tracked?	If Dispostioned and Closed, Where is it Documented?	Status CS/R/WL	Commissioning Impact Y/N	High Priority "X"	Comments
54			CS	Y	X	Need to confirm the tankfarm's ability to handle WTP Tc.
1			Closed	Y		Closed. Scoping test showed quick dissolution of sulfate solids.
2			Closed			Closed. Modeling shows ample capacity even with added water.
3			Ongoing			Ongoing
1			WL	N		

New Task Number	Original PETD Number	Title	Status as of June 30, 2010	Description	Comments	Suggested or Actual Prime Owner
2	26	K3 Melter Refractory Supply		K3 is now obsolete. Need to identify how it can be obtained. Melter design life is 5 years.	K3 is key to current melter design. May need to develop alternate materials.	TPRA
3	38	Evaluate TF Systems Plan 4A Revision on WTP		Need to evaluate how it might impact our ability to make $$	need to work with the TF as feed changes and timing could impact WTP start up earnings capability	TPRA
4	46	Evaluate LiOH impacts on WTP		Evaluate impact on LAW	New Process. TF has the ball but WTP needs to stay informed so we	TF
5	60	Need for front end solids removal on WTP		Guards against large solids being sent which could settle. Would also address M-1 and M-3 issues	Cyclone? Grinder?	TPRA (TF)
6	87	Demo Spintek Filter		Backup for crossflows	Part of M-12 Phase Ii	TPRA
7	71	Melter Bubbler Placement Optimization		Added bubblers were installed in the melter but optimization (flow,mulitple heads, etc) was not considered.	Could provide for improved melter capacity and throughput. Want to do before melters go hot.	TPRA
8	90A	Test other simulants on PEP		Use PEP as is and do other tests	Several reports written	TF
9	91	Expand PEP and do integrated testing		TF will own PEP. See report	Focus on tech issues	TF

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2			R	N		Longer term issue. Issue includes bubbler tube material also.
3			R	Y		Ensure first hot feed tank composition does not change.
4			WL	N		
5			WL	Y		TF must meet WTP feed spec requirements
6			R	N		M-12 Phase II rec. Tankfarm can consider it. Optimization.
7			WL	N		Optimized bubbler placement to be studied with next gen melter.
8			R	Y		PEP being transferred to TF. WTP needs to maintain involvement.
9			WL	N		PEP being transferred to TF. WTP needs to maintain involvement.

New Task Number	Original PETD Number	Title	Status as of June 30, 2010	Description	Comments	Suggested or Actual Prime Owner
10	92	Expand PEP, make more prototypic, and do integrated testing.		TF will own PEP. This requires higher investment. See report	Focus on tech and training issues.	TF
OTHER						
1	25	SSJ process and 60 Day Process time for New Task > $600K Needs improvement		Administratium will slow down schedule especially in time of crisis	***N/A to this listing.*** Schedules need ot incorporate this timing need. Preplanning for crisis situation needs to be developed now.	Other
2	10	EPD Closure		***N/A to this listing.*** Need to resolve final cost and ID funds	N/A to this listing.Could cost an additional $1-2M	Other

New Task Number	Where is it Listed and/or Tracked?	If Dispostioned and Closed, Where is it Documented?	Status CS/R/WL	Commissioning Impact Y/N	High Priority "X"	Comments
10			WL	N		PEP being transferred to TF. WTP needs to maintain involvement.
OTHER						
1						Not a tech program but can have big impact on tech.
2						$1.5M allegedly owed.